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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,832	01/26/2001	Yasuhiro Omura	108455	4433

25944 7590 12/18/2002

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EXAMINER

FULLER, RODNEY EVAN

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/769,832

Applicant(s)

OMURA ET AL. 

Examiner

Rodney E Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) 49-66 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7 & 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

In response to applicant's Amendment, dated September 24, 2002, the examiner acknowledges the correction of the objection related to the Specification (abstract) set forth in the Office Action mailed August 30, 2002.

Election/Restrictions

1. Claims 49-66 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 9.

Claim Objections

2. Claim 48 is objected to because of the following:

Claim 48 sets forth "a manufacturing method of micro-devices comprising a lithographic process using the projection exposure apparatus of Claim 29." However, claim 48 does not set forth any active method steps or the metes-and-bounds of any process.

Appropriate correction is required.

Information Disclosure Statement

3. The information disclosure statement filed January 26, 2001 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently

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understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 14, 19-35, 38-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka, et al. (US 4,736,225).

Regarding claims 1, 26-28 and 46, Tanaka (US 4,736,225) discloses “a first imaging optical subsystem (Fig. 8, ref.# 28a) which is arranged in an optical path between the first surface (Fig. 8, ref.# 14) and the second surface (Fig. 8, ref.# 16) and has a dioptric imaging optical system to form a first intermediate image of the first surface; a first fold mirror (Fig. 8, ref.# 10, M1) which is arranged in the vicinity of a position of forming the first intermediate image to deflect a beam prior to or after the position where the first intermediate image is formed; a second imaging optical subsystem (Fig. 8, ref.# 30) for forming a second intermediate image with a magnification factor nearly equal to the first intermediate image in the vicinity of a position of forming the first intermediate image based on the beam from the first intermediate image, the second image optical subsystem has a concave reflecting mirror (Fig. 8, ref.# 26) and at least one negative lens (Fig. 8,

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ref.# 24); a second folding mirror (Fig. 8, ref.# 20, M2) which is arranged in the vicinity of a position of forming the first intermediate image to deflect a beam prior to or after the position where the second intermediate image is formed; and a third imaging optical subsystem (Fig. 8, ref.# 28b) which is arranged in an optical path between the second imaging optical subsystem and the second surface and has a dioptric imaging optical system to form the reduced image onto the second surface based on the beam from the second intermediate image.”

Regarding claims 2 and 30, Tanaka (US 4,736,225) discloses “wherein the reflecting surface of the first folding mirror and a reflecting surface of the second folding mirror are positioned so that they do not overlap spatially.” (See Fig. 8, ref.# 20, M1, M2)

Regarding claim 3, Tanaka (US 4,736,225) discloses “wherein all the lenses constituting the first imaging optical subsystem and all lenses constituting the third imaging optical subsystem are arranged along a single optical axis.” (See Fig. 8, ref.# 28a, 28b)

Tanaka (US 4,736,225) likewise discloses all the structure set forth in the remaining dependent claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 4-13, 15-18, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka, et al. (US 4,736,225).

Tanaka (US 4,736,225) discloses the claimed invention except for the limitations (claims 4, 15, 36) "...wherein a magnification factor B2 of the second imaging optical subsystem satisfies the following condition: $0.82 < |B2| < 1.20$;" (claims 5, 16) "...wherein the following condition is satisfied: $|L1-L2|/|L1| < 0.15$;" (claims 6, 17, 37) "...wherein the following condition is satisfied: $|0.20 < |B| / |B1| < 0.50$;" and (claims 7, 18) "...wherein the catadioptric optical system is a telecentric optical system on both sides of the first surface and the second surface, and satisfies the following condition: $|E-D|/|E| < 0.24$." It would have been obvious to one having ordinary skill in the art at the time the invention was made to select optical components to meet the conditions set above, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Inokuchi (US 4,678,321) and Hartwig (US 3,574,459) each disclose "a first imaging optical subsystem which is arranged in an optical path between the first surface and the second surface and has a dioptric imaging optical system to form a first intermediate image of the first surface; a first fold mirror which is arranged in the vicinity of a position of forming the first intermediate image to deflect a beam prior to or after the position where the first intermediate

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image is formed; a second imaging optical subsystem for forming a second intermediate image with a magnification factor nearly equal to the first intermediate image in the vicinity of a position of forming the first intermediate image based on the beam from the first intermediate image;" "a second folding mirror which is arranged in the vicinity of a position of forming the first intermediate image to deflect a beam prior to or after the position where the second intermediate image is formed; and a third imaging optical subsystem which is arranged in an optical path between the second imaging optical subsystem and the second surface and has a dioptric imaging optical system to form the reduced image onto the second surface based on the beam from the second intermediate image."

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney Fuller whose telephone number is (703) 306-5641. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams, can be reached on (703) 308-2847.

Rodney Fuller
Primary Examiner



December 15, 2002